General

Title

Stroke: percentage of ischemic stroke patients who develop a symptomatic intracranial hemorrhage within (less than or equal to) 36 hours after the onset of treatment with IV or IA thrombolytic (t-PA) therapy, or mechanical endovascular reperfusion procedure.

Source(s)

The Joint Commission. Disease-specific care certification program. Comprehensive stroke: performance measurement implementation guide. Oakbrook Terrace (IL): The Joint Commission; 2015 Mar. 278 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Outcome

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration greater than or equal to 4 point increase on National Institutes of Health Stroke Scale [NIHSS] and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (less than or equal to) 36 hours after the onset of treatment with intravenous (IV) or intra-arterial (IA) thrombolytic (t-PA) therapy, or mechanical endovascular reperfusion procedure (i.e., mechanical endovascular thrombectomy with a clot retrieval device).

This measure represents the overall rate. The following rates are also reported:

- Hemorrhagic transformation for patients treated with intra-venous (IV) thrombolytic (t-PA) therapy only
- Hemorrhagic transformation for patients treated with intra-arterial (IA) thrombolytic (t-PA) therapy or mechanical endovascular reperfusion therapy

Rationale

Intravenous (IV) thrombolytic (t-PA) therapy for acute ischemic stroke was approved by the U.S. Food and Drug Administration in 1996, following findings from the National Institute of Neurological Disorders and Stroke (NINDS) trial which demonstrated favorable outcomes in 31% to 50% of patients treated with recombinant tissue plasminogen activator (r-tPA), as compared to 20% to 38% of patients treated with placebo. Intra-arterial (IA) t-PA therapy has since been used to improve recanalization and clinical outcomes for select patients nonresponsive to IV therapy. Intracranial hemorrhage is the major risk of t-PA therapy with similar rates reported for both IV and IA routes. The NINDS trial found that 6.4% of patients treated with IV t-PA experienced symptomatic bleeding. Findings from the Prolyse in Acute Cerebral Thromboembolism (PROACT II) study found the intracranial hemorrhage with neurological deterioration within 24 hours occurred in 10% of patients treated with IA recombinant prourokinase. In addition to these agents, other available thrombolytic drugs include: streptokinase, p-anisoylated lys-plasminogen-streptokinase activator, and urokinase.

Endovascular reperfusion therapy in acute ischemic stroke comprises a number of pharmacological and mechanical procedures. Mechanical endovascular thrombectomy is a treatment option for patients with large vessel occlusions in whom pharmacological thrombolysis is contraindicated or might be ineffective. A number of mechanical endovascular thrombectomy devices, also known as clot retrieval devices, are currently undergoing clinical evaluation. Mechanical endovascular thrombectomy devices are intended to improve tissue rescue and diminish reperfusion hemorrhage while broadening the population eligible for therapy. These devices may be used alone or in conjunction with chemical thrombolysis (i.e., IV or IA t-PA).

Evidence for Rationale

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Primary Health Components

Ischemic stroke; intracranial hemorrhage; intra-venous (IV) thrombolytic (t-PA) therapy; intra-arterial (IA) t-PA therapy; mechanical endovascular reperfusion therapy

Denominator Description

Ischemic stroke patients treated with intravenous (IV) thrombolytic (t-PA) therapy only (IVO) or intra-arterial (IA) t-PA therapy, or who undergo mechanical endovascular reperfusion therapy (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Ischemic stroke patients who develop a symptomatic intracranial hemorrhage less than or equal to 36 hours after the onset of treatment with intravenous (IV) thrombolytic (t-PA) therapy, or intra-arterial (IA) t-PA therapy, or mechanical endovascular reperfusion therapy

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

Unspecified

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code for ischemic stroke as defined in the appendices of the original measure documentation

AND

Patients with documented thrombolytic (intravenous [IV] or intra-arterial [IA] thrombolytic [t-PA]) therapy (ICD-9-CM Principal or Other Procedure Codes as defined in the appendices of the original measure documentation)

OR

Patients with documented mechanical endovascular reperfusion therapy (ICD-9 CM Principal or Other Procedure Codes as defined in the appendices of the original measure documentation)

Exclusions

Patients less than 18 years of age
Patients who have a Length of Stay greater than 120 days
Patients admitted for *Elective Carotid Intervention* (as defined in the Data Elements)
Patients transferred to the hospital following treatment with IV t-PA therapy or IA t-PA therapy or mechanical endovascular reperfusion therapy initiated prior to arrival at the hospital
Patients who hemorrhage prior to the onset of treatment with IV t-PA therapy or IA t-PA therapy or mechanical endovascular reperfusion therapy

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Ischemic stroke patients who develop a symptomatic intracranial hemorrhage less than or equal to 36 hours after the onset of treatment with intravenous (IV) thrombolytic (t-PA) therapy, or intra-arterial (IA) t-PA therapy, or mechanical endovascular reperfusion therapy

Exclusions
None

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Adverse Health State

Instruments Used and/or Associated with the Measure

- The National Institutes of Health Stroke Scale (NIHSS)
- Comprehensive Stroke (CSTK) Initial Patient Population Algorithm Flowchart
- CSTK-05: Hemorrhagic Transformation (Overall Rate) Flowchart

Computation of the Measure

Measure Specifies Disaggregation

Measure is disaggregated into categories based on different definitions of the denominator and/or numerator

Basis for Disaggregation

The CSTK-05 measure is reported as an overall rate which includes ischemic stroke patients who develop a symptomatic hemorrhage after reperfusion therapy.

> CSTK-05a: Ischemic stroke patients who develop a symptomatic intracranial hemorrhage less than or equal to 36 hours after the onset of treatment with IV thrombolytic (t-PA) therapy only (IVO).
> CSTK-05b: Ischemic stroke patients who develop a symptomatic intracranial hemorrhage less than or equal to 36 hours after the onset of treatment with IA thrombolytic (t-PA) therapy or mechanical endovascular reperfusion therapy.

CSTK-05a and CSTK-05b are subsets of the overall rate, and stratified by the type of therapy.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

Risk adjustment for this measure is applied to the following data elements:

- Admission Date
- Birthdate
- Hispanic Ethnicity
- International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Other Diagnosis Codes
- Intravenous (IV) Thrombolytic Therapy Prior to Intra-arterial (IA) or Mechanical Reperfusion Therapy
- Initial Blood Glucose Value at Hospital Arrival
- Initial Blood Pressure at Hospital Arrival
- Initial National Institutes of Health Stroke Scale (NIHSS) Score at Hospital Arrival
- Initial Platelet Count at Hospital Arrival
- Race
- Sex

Standard of Comparison

not defined yet

Identifying Information

Original Title

CSTK-05: hemorrhagic transformation (overall rate).

Measure Collection Name

Advanced Certification in Disease-specific Care Measures

Measure Set Name

Comprehensive Stroke Standardized Performance Measures

Submitter

The Joint Commission - Health Care Accreditation Organization

Developer

The Joint Commission - Health Care Accreditation Organization

Funding Source(s)

All external funding for measure development has been received and used in full compliance with The Joint Commission's corporate sponsorship policies, which are available upon written request to The Joint

Commission.

Composition of the Group that Developed the Measure

Unspecified

Financial Disclosures/Other Potential Conflicts of Interest

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with The Joint Commission's conflict of interest policies, copies of which are available upon written request The Joint Commission.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Mar

Measure Maintenance

This measure is reviewed and updated by the developing organization every 6 months.

Date of Next Anticipated Revision

2015 Jul

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in April 2016.

Measure Availability

Source available from The Joint Commission Web site .

For more information, contact The Joint Commission at One Renaissance Blvd., Oakbrook Terrace, IL 60181; Phone: 630-792-5800; Fax: 630-792-5005; Web site: www.jointcommission.org .

NQMC Status

This NQMC summary was completed by ECRI Institute on May 19, 2015. The information was verified by the measure developer on June 22, 2015.

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Copyright Statement

Production

Source(s)

The Joint Commission. Disease-specific care certification program. Comprehensive stroke: performance measurement implementation guide. Oakbrook Terrace (IL): The Joint Commission; 2015 Mar. 278 p.

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